

Application No. 10/699,726
Response to Final Rejection dated March 1, 2005
Reply to Office Action of December 13, 2004

REMARKS

Applicants respectfully request reconsideration of the above-identified application in light of the present response. Claims 1-19 are pending. The Final Office Action rejected claims 1-19 under 35 U.S.C. § 103(a) as being unpatentable over Dunn et al. [Dunn] (US 5,614,243) in view of Asher et al. [Asher] (US 5,215,777).

Independent claims 1 and 12 are product-by-process claims. According to the Manual of Patent Examining Procedure, "[t]he structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially . . . where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product." (MPEP § 2113.)

The Applicants continue to submit that the products of Dunn, Asher, or combinations thereof cannot render the products of independent claims 1 and 12 obvious because the process steps of Dunn, Asher, and the claimed inventions impart distinctive structural characteristics to the final products. As a result, the structure implied by the process steps must be considered when assessing the patentability of the product-by-process claims. The Final Office Action completely ignored the distinctions that each respective process implies to the structure of the final product.

In light of the discussion below, the Applicants respectfully request the withdrawal of the rejections under 35 U.S.C. § 103(a) to claims 1-19.

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Dunn expressly discloses that specific processing temperatures must be followed or an unacceptable product is formed.

According to the specific teachings of Dunn, a texturizing agent (i.e., starch, gum, and insoluble microparticle) must be processed at specific temperatures otherwise a product having a gritty and poor mouthfeel is formed. Dunn requires temperatures between 125° to 150°C (Col. 4, lines 66-67) and discloses several times that if such conditions are not followed, a product having the gritty and poor mouthfeel is obtained. The products of independent claims 1 and 12, on the other hand, require temperatures between 60° and 100°C. Therefore, according to the teachings of Dunn, the claimed products should have an unacceptable texture.

The following six different passages in Dunn illustrate how the process of Dunn imparts distinctive structural characteristics to the final product:

For the purposes of the present invention, the term "texturizing agent" will be used to describe products derived from high amylose (>30 % amylose as determined by iodine binding) starch that have been processed *under specific conditions of temperature, pressure, and shear* (Col. 3, lines 1-5.) (Emphasis added.)

The method for producing the novel texturing agents generally involves: . . . adding a gum and optionally an insoluble microparticle (depending upon the final texturizing agent desired) *under controlled conditions of temperature and shear; . . .* and cooling of the fully solubilized starch *under controlled conditions of time, temperature and shear* to yield a thixotropic gel. (Col. 4, lines 14-27.) (Emphasis added.)

The rate of heating, time duration at the final cook temperature (i.e., the temperature above the gelatinization temperature of starch), and shear rate in the reactor vessel *affect the properties of the final product.* (Col. 4, lines 61-64.) (Emphasis added.)

Variations in initial temperature and rate of heating affect the properties of the final product even through the total time at 138°C is essentially unchanged. (Col 5, lines 3-5.) (Emphasis added.)

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The importance of the final temperature used in the present invention is illustrated by the following comparison. High amylose starch was heated to a maximum temperature in the reactor of 121°C for 8 hours in the absence of shear. *Even though the cooking process is carried out for a much longer time period than that of the present invention, this lower temperature does not allow for complete solubilization and disruption of the starch granules resulting in a product that contains relatively large particulates that exhibit grittiness and poor mouthfeel when tasted directly.* In contrast, the higher temperature used in the present process insures full disruption of the starch granules and solubilization of the high amylose starch which yield a much smoother product. (Col. 5, lines 14-27.) (Emphasis added.)

Temperatures lower than about 85°C will result in inefficient filtration as the starch retrogrades. (Col. 6, lines 4-5.) (emphasis added.)

In light of the above, the process of Dunn and the claimed process limitations each impart distinct structural characteristics to the product. According to Dunn, the claimed process limitations would form an unacceptable product. Moreover, as further discussed below, the combination of Dunn and Asher would not overcome any of the above deficiencies.

Dunn also discloses that his processing steps form a unique “complex” between the starch, gum, and titanium dioxide, which is non-existent if the process steps are not followed.

The specific processing conditions of Dunn form a complex of the starch, gum, and titanium dioxide that imparts the textural properties to the final product. (Col. 2, lines 26-30.) Dunn teaches that if the processing conditions are not followed, then such complex is not formed. If the complex is not formed, then Dunn discloses that the final product has unacceptable characteristics. Specifically, Dunn states that

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[a]s shown in the example section, a low fat mayonnaise was prepared with starch/xanthan gum/titanium dioxide in the form of a complex and as a simple admixture of these ingredients. The product formulated with the complex was more fat-like in texture, less pasty and smoother in mouthfeel than the sample prepared with the admixture ***Thus, complexation of the starch, gum and insoluble microparticle components is important to achieving a texturizing agent that can satisfactorily replace fat in foods to closely approximate their full-fat counterparts.*** (Col. 8, lines 40-53.) (Emphasis added.)

Accordingly, the required processing steps of Dunn form a unique complex between the ingredients that is responsible for the texture and mouthfeel properties of the final product.

Dunn also defines the required "complex." According to Dunn, the required complex is:

an intimately associated relationship between the starch, gum and optionally the insoluble microparticle. For example, as shown by scanning electron microscopy (SEM), titanium dioxide particles are incorporated into and become part of the starch/gum matrix. SEM results also show that due to the incorporation of titanium dioxide particles into the starch, the microstructure of the starch/gum is disrupted. (Col. 3, lines 14-21.)

The processing steps of Dunn, therefore, impart unique structural characteristics to the final product.

The claimed process limitations, on the other hand, result in a product that is distinct from the product of Dunn. At a minimum, the invention uses lower temperatures; therefore, the claimed products most likely do not include the specific complex of the starch, gum, and insoluble microparticle as required by Dunn. The process limitations suggest a clear structural distinction between the aqueous composition of claim 1 or the food composition of claim 12 over the products of Dunn. Moreover, as further discussed below, the combination of Dunn and Asher would also not overcome any of these deficiencies.

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Dunn would not be combined with Asher because Dunn teaches away from being modified.

Applicants also continue to disagree that Dunn and Asher can be combined to arrive at the products of independent claims 1 and 12. The Applicants respectfully submit that the Final Office Action has ignored conflicting teachings in the references and has not provided any reasonable expectation of success in the combination.

As discussed above, Dunn teaches a specific method to arrived at its product and indicates that deviation from such method produces a product having a gritty and poor mouthfeel; thus, Dunn teaches away from being modified or combined with Asher as suggested by the Final Office Action. Asher teaches different process steps, different ingredients, and lower temperatures, which, according to Dunn, would not produce an acceptable product. Based on the specific disclosures in Dunn, one skilled in the art would not be motivated to combine the references in the manner suggested by the Final Office Action because there is no reasonable expectation of success in the combination.

Dunn and Asher disclose food products having significantly less texturizing and stabilizing agents than required by independent claim 12.

Independent claim 12 is to a food composition comprising a dairy product base and an aqueous composition in a ratio, based on the food composition, of 30 to 80 weight percent of the dairy product base and 70 to 20 weight percent of the aqueous composition.

While each of the references disclose the use of similar components in a food, neither reference teaches or suggests the claimed food composition. For example, even with similar ingredients, neither reference discloses the claimed levels (*i.e.*, 70 to 20 weight percent) of the aqueous composition in the food product. Dunn

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discloses between 0.1 and about 10 percent of its texturizing agent in a food formulation. (Col 8, lines 25-28.) Asher also only discloses about 10% of an equivalent component.^{1/} The claimed food composition requires, at a minimum, 20% of the aqueous composition. Therefore, the cited references only disclose half of such component.

In addition, based on the specific teachings of each cited reference, it would not be obvious to merely increase such levels. Asher teaches away from increasing the level of stabilizer components because of the negative effects of such modification. Asher specifically discloses that higher stabilizer levels results in low-fat foods having "undesirable characteristics." (Col. 2, lines 3-6.) Such undesirable characteristics include a crumbly texture, weak body, aftertaste, or gummy mouth feel. (Col. 1, lines 24-30 and lines 34-39.) Dunn, on the other hand, teaches a specific method that if deviated from produces unacceptable results. Increasing the level of stabilizer components of either reference, therefore, would be unobvious.

Accordingly, the process limitations of independent claim 12 achieves a food composition having a smooth texture using amounts of ingredients disclosed by the cited prior art as producing unacceptable results.

^{1/} Asher discloses an ice cream that separately includes about 2.5% starch, 0.5 % stabilizers (i.e. gum), and 7% whey protein concentrate that provide about 10% of the ice cream (Col. 4, lines 30-50.)

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CONCLUSION

Applicants respectfully request that the Examiner allow pending claims 1-19 and pass this Application to issue. In the alternative, the Applicants have also submitted a Notice of Appeal concurrently with this response.

If the Examiner believes that a telephonic or personal interview would be helpful to terminate any issues which may remain in the prosecution of the Application, the Examiner is requested to telephone Applicants' attorney at the telephone number set forth herein below.

The Commissioner is hereby authorized to charge any additional fees which may be required in the Application to Deposit Account No. 06-1135.

Respectfully submitted,

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